

Educational Session 5A

# A Cross-Industry Discussion on Retracted Research: Connecting the Dots for Shared Responsibility

43<sup>rd</sup>  
ANNUAL  
MEETING

**Charting  
a New  
Course**

From Chaos  
to Innovation

**MAY 2021**



**Annette Flanagan**

JAMA, The JAMA  
Network, and  
JAMAEvidence



**Hannah Heckner**

Silverchair,  
@silverchairnews



**Deborah Poff**

Committee on  
Publication Ethics  
(COPE)



**John Seguin**

Third Iron LLC,  
@johnseguin88



**Jodi Schneider**

University of Illinois  
Urbana-Champaign,  
@jschneider

# Helpful Information

- Meeting Hashtag #SSP2021
- Recording available on demand after the broadcast
- Website:  
<https://infoqualitylab.org/projects/risrs2020/>
- Type questions in the chat section

## Need Assistance?

- Email:  
[virtual@conferencedirect.com](mailto:virtual@conferencedirect.com)
- Visit Live Support



**43<sup>rd</sup>**  
ANNUAL  
MEETING

**Charting a New Course**

From Chaos to Innovation | MAY 24-27, 2021



## RETRACTION GUIDELINES

### Summary

Editors should consider retracting a publication<sup>1</sup> if:

- They have clear evidence that the findings are unreliable, either as a result of major error (eg, miscalculation or experimental error), or as a result of fabrication (eg, of data) or falsification (eg, image manipulation)
- It constitutes plagiarism
- The findings have previously been published elsewhere without proper attribution to previous sources or disclosure to the editor, permission to republish, or justification (ie, cases of redundant publication)
- It contains material or data without authorisation for use
- Copyright has been infringed or there is some other serious legal issue (eg, libel, privacy)
- It reports unethical research
- It has been published solely on the basis of a compromised or manipulated peer review process
- The author(s) failed to disclose a major competing interest (a.k.a. conflict of interest) that, in the view of the editor, would have unduly affected interpretations of the work or recommendations by editors and peer reviewers.

# What is retraction?

“Retraction is a mechanism for correcting the literature and alerting readers to articles that contain such seriously flawed or erroneous content or data that their findings and conclusions cannot be relied upon.”

COPE Council. COPE Guidelines: Retraction Guidelines. Version 2, Nov 2019  
<https://doi.org/10.24318/cope.2019.1.4>

# What is retraction?

“Retraction is a mechanism for correcting the literature and alerting readers to articles that contain such seriously flawed or erroneous content or data that their findings and conclusions cannot be relied upon.”

“Prompt retraction should **minimise the number of researchers who cite the erroneous work**, act on its findings, or draw incorrect conclusions such as from *‘double counting’* redundant publications in meta-analyses or similar instances.”

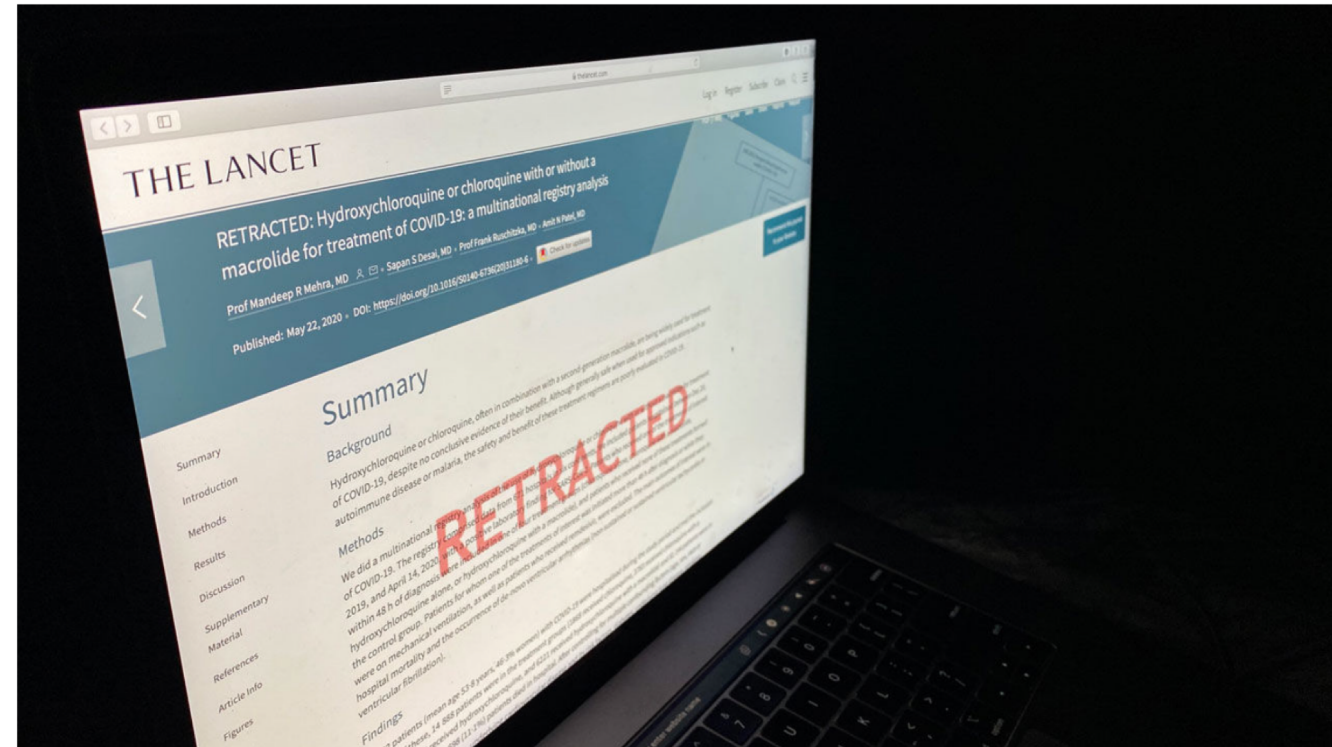
COPE Council. COPE Guidelines: Retraction Guidelines. Version 2, Nov 2019  
<https://doi.org/10.24318/cope.2019.1.4>



# Continued citation of retracted papers

Two COVID-19 articles that were retracted less than a month after they were published have over 900 citations each.

**Science** magazine examined 200 of the post-retraction citations to these papers and concluded that over half inappropriately cited the retracted articles.



E. PETERSEN/SCIENCE

Many scientists citing two scandalous COVID-19 papers ignore their retractions

By Charles Pillar | Jan. 15, 2021, 8:00 AM

<https://doi.org/10.1126/science.abg5806>

# Few authors show awareness of retraction

95% of post-retraction citations in PubMed Central do **not** show awareness of the retraction

Tzu-Kun Hsiao & Jodi Schneider. Continued Use of Retracted Papers.  
[https://osf.io/4jexb/?view\\_only=ab8e49facd5d4372b52d1419af8b9651](https://osf.io/4jexb/?view_only=ab8e49facd5d4372b52d1419af8b9651)



Jodi Schneider  
[jodi@illinois.edu](mailto:jodi@illinois.edu)

# Few authors show awareness of retraction

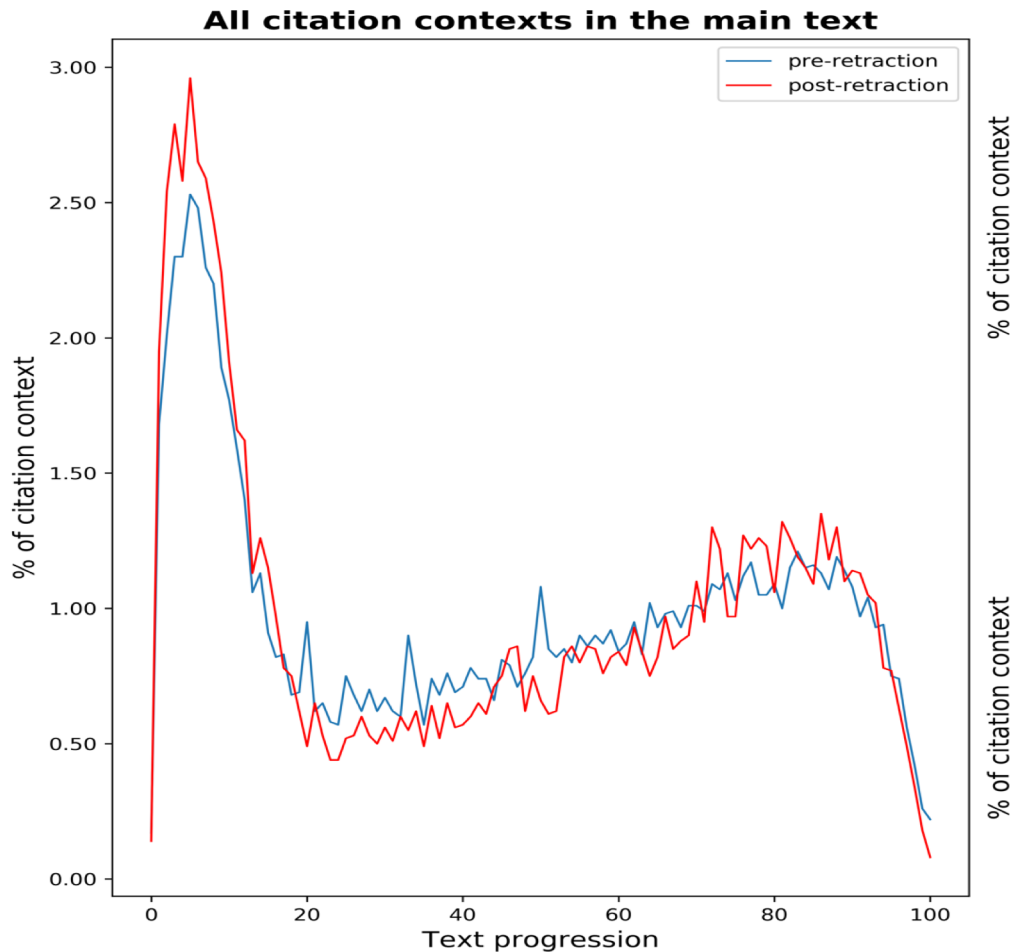
95% of post-retraction citations in PubMed Central do **not** show awareness of the retraction

## Examples:

- A clinico-histopathologic study in rabbits confirmed that PRP treatment can achieve a faster wound healing rate [retracted cite].
- However, to date, only one human study has demonstrated an induction of SIRT1 mRNA level in PBMCs [retracted cite].

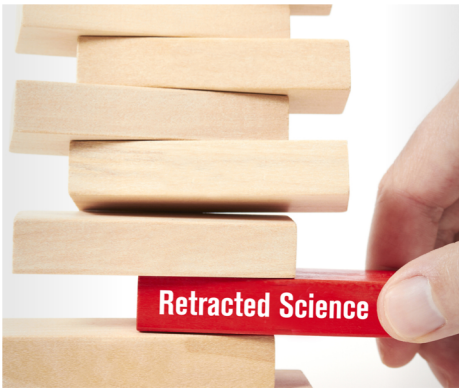
Tzu-Kun Hsiao & Jodi Schneider. Continued Use of Retracted Papers.  
[https://osf.io/4jexb/?view\\_only=ab8e49facd5d4372b52d1419af8b9651](https://osf.io/4jexb/?view_only=ab8e49facd5d4372b52d1419af8b9651)

# Few authors show awareness of retraction



- 95% of post-retraction citations in PubMed Central do **not** show awareness of the retraction
- No differences in where retracted papers are cited, before vs. after retraction

Tzu-Kun Hsiao & Jodi Schneider. Continued Use of Retracted Papers.  
[https://osf.io/4jexb/?view\\_only=ab8e49facd5d4372b52d1419af8b9651](https://osf.io/4jexb/?view_only=ab8e49facd5d4372b52d1419af8b9651)

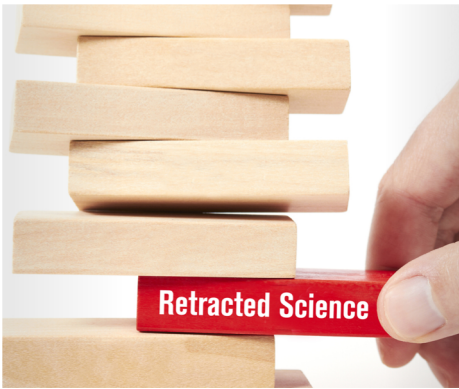


# RISRS2020: Reducing the Inadvertent Spread of Retracted Science

## A stakeholder consultation & environment scan

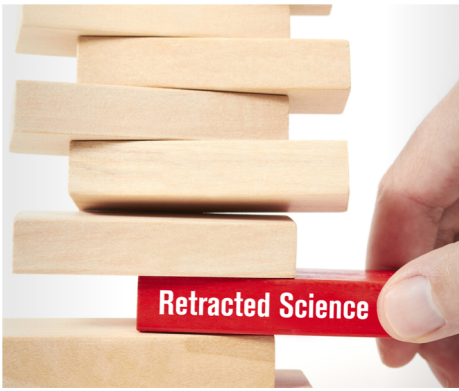
- 50 interviews of stakeholders in the scientific publishing ecosystem.
- 70 participants in a 3-part online workshop to interact, react, and reflect in real-time on the problem retractions pose and possible solutions.
- Literature review of empirical research about retraction
- Citation analysis of retracted research





# RISRS2020 Motivating Questions

1. What is the actual harm associated with retracted research?
2. What are the intervention points for stopping the spread of retraction?  
Which gatekeepers can intervene and/or disseminate retraction status?
3. What are the classes of retracted papers? (What classes of retracted papers can be considered citable, and in what context?)
4. What are the impediments to open access dissemination of retraction statuses and retraction notices?



# RISRS2020 Draft Recommendations

1. Develop a systematic cross-industry approach to ensure the **public availability of high-quality, consistent and timely information about retractions.**
2. Recommend a **taxonomy of retraction categories/classifications and corresponding retraction metadata** that can be adopted by all stakeholders.
3. Develop **best practices for coordinating the retraction process** to enable timely, high-quality outcomes.
4. **Educate stakeholders** about publication correction processes including retraction and about pre- and post-publication stewardship of the scholarly record.



# Feedback request for RISRS2020 Draft Recommendations

**F1000Research** Search [SUBMIT YOUR RESEARCH](#)

[BROWSE](#) [GATEWAYS & COLLECTIONS](#) [HOW TO PUBLISH](#) [ABOUT](#) [BLOG](#) [MY RESEARCH](#) [SIGN IN](#)

[Home](#) » [Browse](#) » Reducing the inadvertent spread of retracted science: Shaping a research...

**DOCUMENT** NOT PEER REVIEWED [VIEW FULL SCREEN](#)

**Reducing the Inadvertent Spread of Retracted Science: Shaping a Research and Implementation Agenda**

Jodi Schneider, Nathan D. Woods, Randi Proescholdt, Yuanxi Fu, and the RISRS Team  
Draft v3  
April 27, 2021

**EXECUTIVE SUMMARY** 2  
Recommendations 4


**INTRODUCTION** 5  
RISRS Project Goals 6  
Framing the Problem 7  
Scope of this Document 8  
Call to Action 9

Metrics | 44 Views | 5 Downloads

[DOWNLOAD](#) 1.26 MB

[SHARE](#) [CITE](#)

PART OF THE GATEWAY

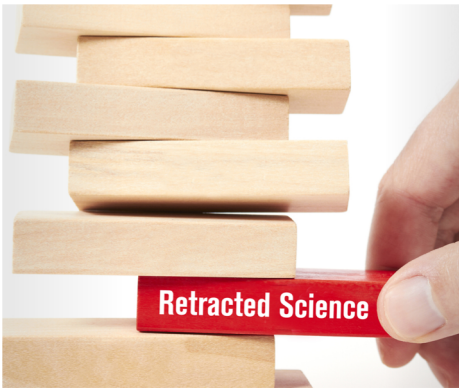
 **Science Policy Research**

Help us finalize the recommendations!

Comment on Google Docs, Word, or F1000 Document, linked from:

<http://infoqualitylab.org/projects/risrs2020/>

Or email [jodi@illinois.edu](mailto:jodi@illinois.edu)



# Cross-Industry Perspectives on Retraction from RISRS2020 Attendees

## Non-Profit Publisher

Deborah Poff, Past Chair, COPE; Editor-in-Chief, Journal of Academic Ethics

## Publishing Platform Provider

Hannah Heckner, Product Strategist, Silverchair

## Linking Technology Provider

John Seguin, President & Chief Librarian, Third Iron LLC



Jodi Schneider  
jodi@illinois.edu

# Proposed Retraction Taxonomy

By

Deborah Poff, CM., PhD

Past Chair, COPE

On behalf of the subcommittee on Retraction Taxonomy



# Rationale for the Proposal

- Despite excellent examples of proposed taxonomies (e.g., CrossRef, NLM and CSE) and different proposed approaches (e.g., Barbour et al., 2017 and Fanelli, Ioannidis and Goodman, 2017) there has been little movement in the industry to adopt a clear taxonomy of agreed upon terms.
- **The Problem of Distinctions without Differences.** There are a lot of overlapping and redundant concepts without meaningful differences and laissez-faire adoption practices based on historical artifacts of practice.
- **Confounding of the Reasons for a Correction with the Actual Correction**

## 5 Suggested Headings

1. Correction
2. Expression of Concern
3. Retraction with Replacement
4. Retraction
5. Withdrawal

# CORRECTIONS

The term to be applied to all changes that correct published content to address errors, with or without clarification, but that do not require a higher level of concern, retraction, republication or replacement or withdrawal.

Notices typically issued by journals which sufficiently describe the error(s) with source of scientific errors explained in formal correction notices.

# EXPRESSION OF CONCERN

The term for notifications that involve concern about the integrity or reliability of a published article without sufficient information to determine the final disposition of an article.

Expressions of concern are typically issued by general descriptions pending further examination, usually through a request for an investigation by the employer or institution or funder. With notices of concern, the article is properly labelled or watermarked with a reciprocal linking between the expression of concern and the article in question.

# RETRACTIONS

The term “retractions” is used for published articles determined to include the results of scientific misconduct (e.g., FF or P) or pervasive errors that irreparably invalidate the key findings of a study.

Typically issued by an editor, publisher, author or other authorized institutional representative.

The article should be properly labeled or watermarked. There should be reciprocal linking between the retraction notice and retracted article in question with the reason for the retraction included.



# RETRACTION WITH REPLACEMENT

The term is used for published articles with serious errors that when corrected change the findings significantly but do not invalidate the underlying science or methods of the study.

A notice of retraction with replacement can be issued by an editor or author and there should be reciprocal linking between the retraction notice and the retracted and replaced article. The reasons for the retraction with replacement should be stated. Typically, copies of the original article with errors highlighted and with corrections highlighted are published as supplements to the retracted and replaced article.

# WITHDRAWAL

The term used for 1. preprints that have serious or pervasive error that would otherwise be retracted (with preprint servers, a withdrawal of content can be different from a retraction of at a journal) or 2. accepted versions of manuscripts that are published or posted with a doi or other permanent identifier without final editing, production, and formatting, and that have serious or pervasive error that would otherwise be retracted. Recent examples include withdrawal because of offensive, discriminatory opinion.

# LACK OF CONSENSUS WITH RESPECT TO A SIXTH CATEGORY

It should be noted that subcommittee members could not reach consensus about a 6<sup>th</sup> term “removal”. Some members thought this category would serve for discriminatory material or harmful violations of ethical norms or security risks, for example, while others felt that withdrawal could serve this purpose and has.

# Lastly

- The assumption is that the retraction taxonomy will be maintained and curated by a non-profit publication ethics organization

# REFERENCES

Barbour, V., Bloom, T., Lin, J., & Moylan E. (2017). Amending published articles: time to rethink retractions and corrections? *F1000Research*. 6:1960. <https://doi.org/10.12688/f1000research.13060>

COPE. (2019). Retraction Guidelines. DOI: 10.24318/cope.2019.1.4.

Fanelli, D., Ioannidis, J., & S. Goodman. (2018). Improving the integrity of published science: An expanded taxonomy of retractions and corrections. *Eur J of Clin Invest*. DOI: 10.1111/eci.12898C) <https://www.nlm.nih.gov/pubs/factsheets/errata.html>.

Council of Science Editors. 3.5 Correcting the Literature. White paper on publication ethics. March 30, 2012. Accessed April 15, 2021. <https://www.councilscienceeditors.org/resource-library/editorial-policies/white-paper-on-publication-ethics/3-5-correcting-the-literature/>.

Crossref. Documentation. Participating in Crossmark. Last Updated April 8, 2020. <https://www.crossref.org/education/crossmark/participating-in-crossmark/>

US National Library of Medicine. Fact sheet: errata, retractions, and other linked citations in PubMed. January 31, 2018. <https://www.nlm.nih.gov/pubs/factsheets/errata.html>.

Beck, J., Ferguson, C.A., Funk, K., Hanson, B., Harrison, M., Ide-Smith, M.B., Lammey, R., et al. (2020). Building trust in preprints: recommendations for servers and other stakeholders. OSF Preprints. July 21. doi:10.31219/osf.io/8dn4w.

Christiansen. S., & Flanagan A. (2017). Correcting the medical literature: “to err is human, to correct divine.” *JAMA*. 318(9):804–805. doi:10.1001/jama.2017.11833



# A CROSS-INDUSTRY DISCUSSION ON RETRACTED RESEARCH: CONNECTING THE DOTS FOR SHARED RESPONSIBILITY

Hannah Heckner//Product Strategist, Silverchair

# THE JOB OF A PLATFORM



To act as a container that suits its contents: open when necessary, closed when required



To disseminate information with clarity and a thought to the user (be it human or machine)



In addition to research content, allow publishers to communicate their brand, cultivating loyalty and trust.





# IN RE: RETRACTIONS



Clearly display and make accessible retractions according to publisher spec



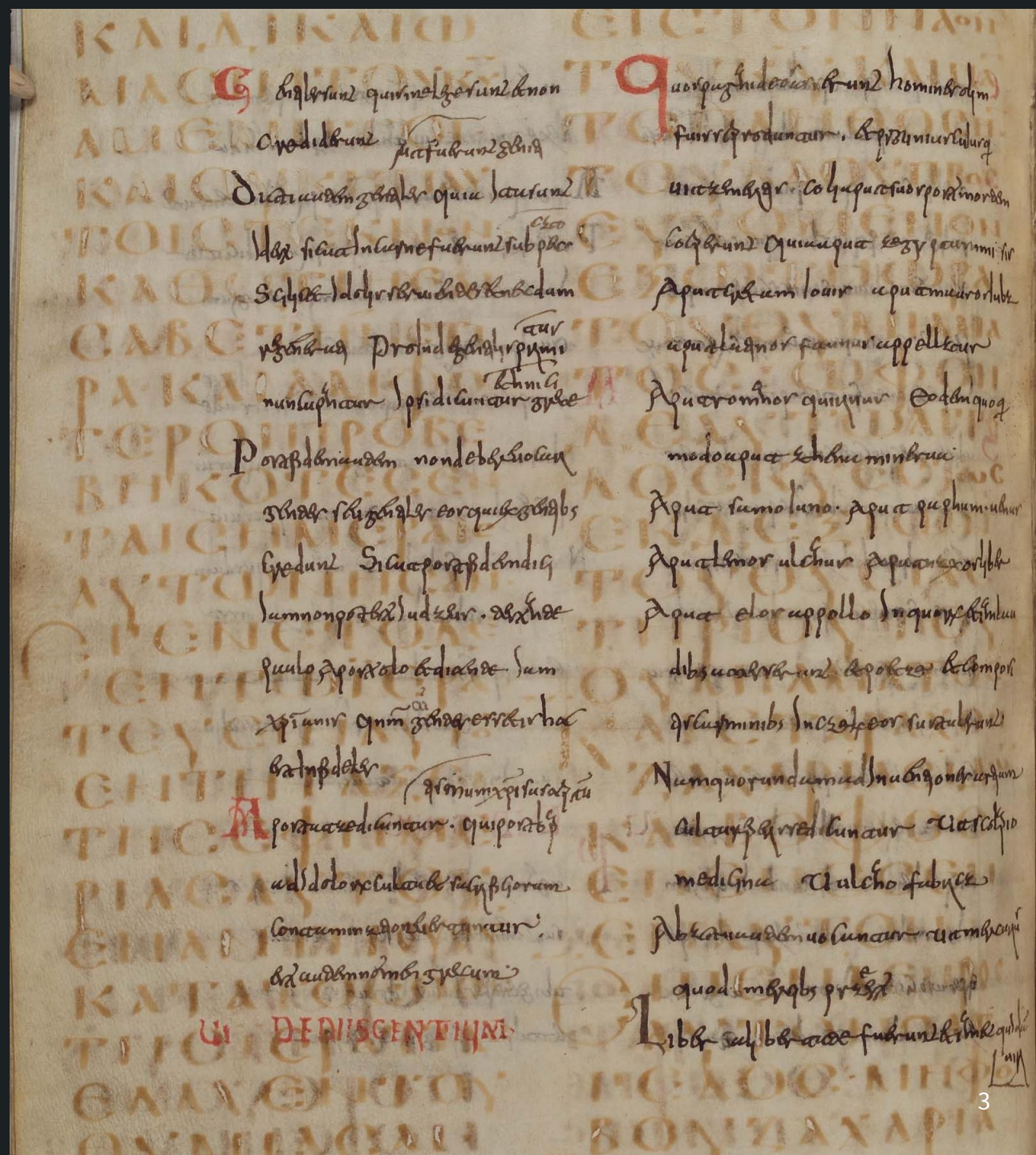
Link retraction notices to original research and other research artifacts on the platform as appropriate



Communicate notices and their metadata downstream to contribute to narrative within larger communication ecosystem



Serve as the historical record/source of truth for the content



# PLATFORM TREATMENT OF RETRACTIONS: DISPLAY

www.nature.com/scientificreports

SCIENTIFIC  
REPORTS

nature research

RETRACTED ARTICLE

OPEN

## Chondro-protective effects of polydatin in osteoarthritis through its effect on restoring dysregulated autophagy via modulating MAPK, and PI3K/Akt signaling pathways

Received: 30 April 2019  
Accepted: 13 September 2019  
Published online: 25 September 2019

Zhengyuan Wu<sup>1</sup>, Zhiwei Luan<sup>1</sup>, Xiaohan Zhang<sup>1</sup>, Ke Zhou<sup>2</sup>, Shiting Ma<sup>3</sup>, Zhenyi Yang<sup>1</sup>, Wenyu Feng<sup>2</sup>, Mingwei He<sup>4</sup>, Linhua Jiang<sup>1</sup>, Jialie Jia<sup>1</sup> & Jun Yao<sup>2,4</sup>

Osteoarthritis (OA) is a degenerative disease of the cartilage that is prevalent in the middle-aged and elderly demography. Polydatin (PD), a natural isochlorogenic acid glucoside, has shown significant anti-inflammatory and anti-arthritis potential in previous studies. This study was designed to evaluate the therapeutic properties of PD *in vitro* and *in vivo*, and elucidate their underlying mechanisms. The expression levels of all relevant factors were evaluated by qRT-PCR, western blotting, and immunohistochemistry (IHC) where suitable. Reactive oxygen species (ROS) and apoptosis were analyzed using the suitable probes and flow cytometry. The histological evidence of cartilage was assessed in rat model. Moreover, the several serum cytokines levels and autophagy levels were evaluated. The results showed PD displayed significant chondro-protective effects, inferred in terms of reduced inflammation and cartilage degradation, apoptosis inhibition, and lower ROS production. The protective effects were attenuated by the autophagy inhibitor 3-MA, indicating a mediating role of autophagy in PD action. Mechanistically, PD exerted its effects by inhibiting the MAPK and PI3K/Akt signaling pathways which led to the down-regulation of mTOR. In conclusion, PD protects against cartilage degeneration by activating the autophagy flux in the chondrocytes via the MAPK and PI3K/Akt signaling pathways.

Osteoarthritis (OA) is a disease in which joints undergo chronic degeneration, particularly in older adults, with upwards of 15% of the world being affected by OA<sup>1,2</sup>. OA is primarily associated with breakdown of the articular cartilage owing to extracellular matrix (ECM) loss and substantial fibrotic development, resulting in eventual total cartilage loss<sup>3</sup>. While some medications can reduce OA symptoms via affecting the subchondral bone and synovium, there is currently a lack of effective therapies owing to its complex pathology. In addition, the drugs often cause severe complications including gastrointestinal bleeding and cardiovascular diseases<sup>4,5</sup>. Individuals with advanced OA require surgery to replace joints with prosthetic alternative and may require arthroscopic surgery<sup>6,7</sup>. Plant-derived agents have increasingly gained attention as a viable therapeutic alternative due to their minimum side effects and low costs<sup>8</sup>.

Polydatin (PD) or 3,4'-O-(3,4'-dihydroxybenzylidene)-3,4'-dihydroxybenzoic acid is a natural compound extracted from the roots of *Polygonum cuspidatum*, and has documented anti-inflammatory, antioxidant and antineoplastic effects<sup>9,10,11</sup>. Studies also show that it can suppress the inflammatory progression in human osteoarthritic chondrocytes<sup>12</sup>, and attenuate the arthritic symptoms in a collagen-induced mouse model of OA<sup>13</sup>. There is evidence suggesting

<sup>1</sup>Department of Orthopaedics Trauma and Hand Surgery, The First Affiliated Hospital of Guangxi Medical University, Nanning, 530021, China. <sup>2</sup>Department of Bone and Joint Surgery, The First Affiliated Hospital of Guangxi Medical University, Nanning, 530021, China. <sup>3</sup>Departments of Pathology, The First Affiliated Hospital of Guangxi Medical University, Nanning, 530021, China. <sup>4</sup>Guangxi Collaborative Innovation Center for Biomedicine, Life Sciences Institute, Guangxi Medical University, Nanning, 530021, China. Zhengyuan Wu and Zhiwei Luan contributed equally. Correspondence and requests for materials should be addressed to J.L. (email: jialie2005@126.com) or J.Y. (email: yaojun800524@126.com)

SCIENTIFIC REPORTS | (2019) 9:13906 | https://doi.org/10.1038/s41598-019-50471-y

1



# PLATFORM RESPONSIBILITIES FOR RETRACTIONS: DISPLAY AND LINKING

A Notice of Retraction and Replacement has been published | [View Article](#)

**This Issue**

Views **1,269**

Citations **0**

Altmetric **19**

Comments

**Letter**



February 18, 2021

**Notice of Retraction and Replacement. Li et al. Association Between Maternal Exposure to Magnetic Field Nonionizing Radiation During Pregnancy and Risk of Attention-Deficit/Hyperactivity Disorder in Offspring in a Longitudinal Birth Cohort. *JAMA Netw Open.* 2020;3(3):e201417**

# PLATFORM TREATMENT OF RETRACTIONS: DISPLAY AND LINKING


JAMA Network™



☰ JAMA Network Open


JAMA Network Open ▾ Enter Search Term


This article has been retracted and replaced | [View Notice](#)

**This Issue** | [Views 6,821](#) | [Citations 1](#) | [Altmetric 102](#) | [Comments 1](#)







 Download PDF


  More ▾


 Cite This

 Permissions

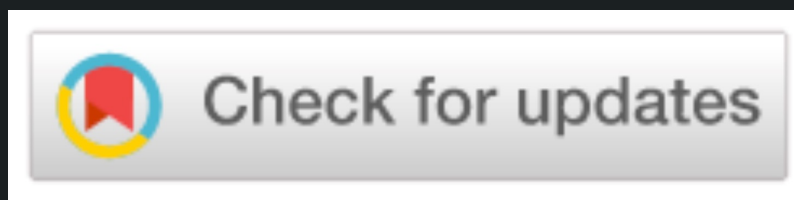
# PLATFORM TREATMENT OF RETRACTIONS: CONTENT MANAGEMENT






 CONTENTS	 FIGURES / TABLES	 SUPPLEMENTAL CONTENT	 REFERENCES	 RELATED	 COMMENTS	
---	--	--	---	--	---	--

**Supplement 2.**  
Retracted Article With Errors Highlighted

**Supplement 3.**  
Replacement Article With Corrections Highlighted


# PLATFORM RESPONSIBILITIES FOR RETRACTIONS: THIRD PARTY RELATIONSHIPS




scite_	
	446
	2
	749
	25
	1




# ROOM FOR GROWTH




Inconsistences in metadata and display standards




Different practices, vocabulary, standards



Gaps in metadata ecosystem




Increased readership of the scholarly record within general audiences underlines need for clarity and collective narrative




Stigma tied to retractions can lead to opacity around practices, best ways forward


# SUGGESTIONS FOR MOVING FORWARD



Continued cross-industry collaboration



Engagement of all parties within ecosystem instituting xml standards, machine readability initiatives, projects that seek to remove information siloes (Google Scholar, STM Article Sharing Framework, Crossref Distributed usage Logging?)



COPE taxonomy project



NISO working group



## Contact Us

316 E. Main St. Suite 300  
Charlottesville, VA 22902



[hheckner@silverchair.com](mailto:hheckner@silverchair.com)



[@silverchairnews](#)

# Dissemination of Retraction Status via Technology Pathways

John Seguin, MLS  
President, Chief Librarian & Co-Founder  
Third Iron, LLC  
[john@thirdiron.com](mailto:john@thirdiron.com)

# Dissemination of Retraction Status

- Citations and articles are commonly accessed and referenced by researchers outside of the publisher's site where a retraction notice appears.
- Knowledge of this retraction then is most comprehensive when technologies used to **submit, access, analyze and organize papers and references** are also aware of the retraction status of articles to prevent *further* dissemination of retracted articles.
- The following technologies utilize existing datasets from CrossRef, PubMed, Retraction Watch and elsewhere to highlight retraction status at these various intersections of the research cycle.



[retractionwatch.com](https://retractionwatch.com)

# scite\_

- Integration of scite\_ into the world's leading **submission systems**:
  - ScholarOne
  - Editorial Manager
  - Manuscript Manager
- Millions of article submissions flow through these systems allowing for checking for expressions of concern within the works being cited early in the submission stage.

The screenshot displays a manuscript submission interface. The top header shows 'supportd...' and '1 / 53' pages, with a zoom level of '71%'. The main content area features the 'ES Energy and Environment' logo and a table titled 'THIS IS A TEST'.

Journal:	Support Demo Plus
Manuscript ID:	WRK4-2021-01-0001
Manuscript Type:	Original Article New New
Date Submitted by the Author:	14-Jan-2021
Complete List of Authors:	Tot, Adela; eqwewq Bean, Mister; Hogwarts; Tetra Tech Inc
Classification:	Chemical Measurement and Imaging Program
Abstract:	This is a short test about the authors.

Below the table is the 'SCHOLARONE™ Manuscripts' logo.

On the right side, there is a 'publons' section with a prompt: '\*Do you want to get recognition for this review on Publons?'. Below this, it says 'Don't let your reviewing work go unnoticed! Researchers the world over use Publons to effortlessly track their valuable peer review contributions for any journal. If you opt in, your Publons profile will automatically be updated to show a verified record of this review in full compliance with the journal's review policy. If you don't have a Publons profile, you will be prompted to create a free account. [Learn more about Publons](#)'. There are two radio buttons: 'Yes' and 'No', with 'No' selected.

Below the Publons section is the 'scite\_' logo and a 'Citation and Reference Check' section. It says 'Check if the references have been supported, contrasted, retracted, received an expression of concern, etc. [Learn more about Scite](#)'. Below this is a row of icons and numbers: a green checkmark with '33', a magnifying glass with '651', a question mark with '9', a red X with '2', and a pencil with '1'.

At the bottom, there is a section titled 'Technical quality of work (check one, place specific comments below):'. It contains two radio buttons: 'Done to the highest standards in the field. Only minor concerns.' and 'Largely well done, but contains some serious problems.'.





# LibKey &



# BrowZine

- **LibKey** and **BrowZine** services have been are in use at over 1,200 organizations globally providing exposure to over 15 Millions users.
- **All linking routes** to full text for retracted papers point to a specially updated message with the retraction detail available
- **Signposting** will occur through all of Third Iron's products and will be available on the API for third-party developers and libraries to utilize.

The screenshot displays a retraction notice interface. On the left, a white sidebar shows the 'EDUCATION' logo and 'Twin Cities University' affiliation. The main content area on the right has a red background. It features a retraction notice for the article 'Influence of Gastrectomy on Cortical and Cancellous Bones in Rats' from 'Gastroenterology Research and Practice'. Below the notice, there are buttons for 'OFFICIAL RETRACTION NOTICE' and 'RETRACTION WATCH RELATED ARTICLE'. A section titled 'Reasons for retraction:' lists five reasons: 'Duplication of Data', 'Error in Text', 'False/Forged Authorship', 'Investigation by Company/Institution', and 'Upgrade/Update of Prior Notice'. Further down, there are options for 'Full Text Format Options', including 'DOWNLOAD PDF' and 'ARTICLE LINK'. At the bottom, there is a 'Discover More:' section with a 'VIEW ARTICLE IN CONTEXT' button and a 'Trouble? See all content access options for this article' link.

# Retraction Signposting Examples



< Back to Journals

SJR: Unranked

2020  
Vol. 26 Issue 1

TOXICIDAD DE TRES INSECTICIDAS ORGANOFOSFORADOS A DIFERENTES TEMPERATURAS.

pp. 5-11 - Henao Muñoz, Liliana Marcela; Triana Velásquez, Tania; Bernal Bautista, Manuel Hernando



**Retracted Article**  
LEAF ANATOMY CHARACTERIZATION OF FOUR Apocynaceae SPECIES AND THE EVOLUTION OF C4 PATHWAY IN GRASSES

pp. 12-18 - Mendonça, Ane Marcela das Chagas; Viana, Pedro Paulo; Delfino, Delfino



HOME | ABOUT | SUBJECT COLLECTIONS | ARCHIVE | SUBSCRIBE | ADVERTISE | ALERTS | FEEDBACK | HELP

Search for Keyword:

Advanced Search

« Previous | Next Article »  
Table of Contents

**This Article**

Published in Advance July 14, 2017, doi:10.1101/cshperspect.a033415  
Copyright © 2018 Cold Spring Harbor Laboratory Press; all rights reserved

» Abstract Free  
Full Text Free  
Full Text (PDF) Free

RETRACTION (vol. 10)

All Versions of this Article:  
cshperspect.a033415v1  
8/3/a033415 most recent

Article Category  
Perspective

Services  
Alert me when this article is updated

The Evolution and Ecology of Resistance in Cancer Therapy

Robert Gatenby and Joel Brown

Author Affiliations  
Correspondence: robert.gatenby@moffitt.org

**Abstract**  
Despite continuous deployment of new treatment strategies and agents over many decades, most disseminated cancers remain fatal. Cancer cells, through their access to the vast information of human genome, have a remarkable capacity to deploy adaptive strategies for even the most effective treatments. We note there are two critical steps in the clinical manifestation of treatment resistance. The first, which is widely investigated, requires deployment of a mechanism of resistance that usually involves increased expression of molecular machinery necessary to eliminate the cytotoxic effect of treatment. However, the emergence of a resistant phenotype is not in itself clinically significant. That is, resistance outcomes only when they form a sufficiently large population to progress and treatment failure. Importantly, proliferative phenotype is by no means certain and, in fact, depends on dynamics governed by the costs and benefits of the resistance context of the local environment and competing populations. molecular machinery of resistance have had little clinical success of the diversity within the human genome—therapeutic mechanism simply results in its replacement by an alternative strategy for overcoming treatment resistance that exploits the critical evolutionary dynamics that govern resistant phenotypes. In general, this approach has shown that resistance mechanisms in cancer cells to even the most effective treatments is not and even prevented with sufficient understanding of the underlying evolutionary dynamics.

ARTICLE  
Fast LC-MS quantitation of glucose and glycerol via enzymatic derivatization

Chiles, Eric ; Wang, Yujue ; Kalembe, Katarzyna M ; Kwon, Hyokjoon ; Wondisford, Fredric E ; Su, Xiaoyang  
Analytical biochemistry, 2019-06-15, Vol.575, p.40-43

“... detection of glucose and glycerol presents challenges. Here, we propose an efficient LC-MS method of quantitative glucose and glycerol detection via enzymatic derivatization to glucose-6-phosphate and sn-glycerol-3-phosphate, respectively...”

PEER REVIEWED

Retracted Article Online access available >  
View Issue Contents

2:25

< Kinetic factors may reshape the d...

PREV ARTICLE   NEXT ARTICLE

**Retracted Article**  
Journal of Biological Physics  
Vol. 46 Issue 4, pp. 343-350, 2020.

Kinetic factors may reshape the dependence of crystal nucleation rate on temperature in protein bulk solution

Dimitrov, Ivaylo L.

**Abstract**  
Here we provide an analysis of primary results obtained from a study of apoferritin crystal nucleation in compositionally invariant bulk solution at constant supersaturation ratio of the protein. The temperature dependence of the stationary crystal nucleation rate in the protein bulk solution is obtained with the help of experimental data.

**View Details**   **RETRACTION NOTICE**

**Article Retracted**  
Third Iron University





- 3M+ Users of the Chrome browser extension
- Automatic sync/notification when retracted papers appear in your library
- Important since retractions occur, by definition, *after* publication so you may be planning to cite something you found months or years ago and this saves you the diligence of re-checking every article for retraction.

The screenshot displays the Zotero web interface. At the top, there is a search bar labeled 'All Fields & Tags' and a green refresh button. Below the search bar is a table of papers. The first row is highlighted in blue and indicates a retraction. To the right of the table, there are tabs for 'Info', 'Notes', 'Tags', and 'Related'. The 'Info' tab is active, showing a red banner that reads 'This work has been retracted.' Below this banner, it states 'Retracted on 2/6/2010' and lists several reasons for retraction: 'Falsification/Fabrication of Data', 'Investigation by Company/Institution', 'Investigation by Third Party', and 'Lack of Approval from Company/Institution'. A warning dialog box is overlaid on the bottom left of the screenshot. The dialog has a title bar that says 'Warning' and a blue question mark icon. The text inside the dialog reads: 'Warning', 'A citation in your document has been retracted:', 'Wakefield, 1998, Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children', 'You can view the item in your library for further details on the retraction.', and a checkbox labeled 'Don't warn me about this citation again'. An 'OK' button is at the bottom right of the dialog.

	Creator	Year	
colitis, an...	Wakefield et al.	1998	•
	DeStefano and Chen	1999	•
epidemi...	Taylor et al.	1999	•
erage in C...	Dales et al.	2001	
association	Farrington et al.	2001	
evidence	DeStefano and Tho...	2004	
	Murch et al.	2004	•
MMR vacci...	Eggertson	2010	•
a vaccinati...	Mrozek-Budzyn et al.	2010	•
	Wright	2010	•
bury bad ...	Deer	2011	
s caused b...	Flaherty	2011	•
	Godlee	2011	•
retraction...	Rao and Andrade	2011	
to link bet...	Maisonneuve and Fl...	2012	•
s and the t...	Uno et al.	2012	•
done with	Centile et al.	2012	•

**Warning**

A citation in your document has been retracted:

Wakefield, 1998, Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children

You can view the item in your library for further details on the retraction.

☐ Don't warn me about this citation again

OK